Botanical Gazette.

Vol. V JANUARY, 1880. No. 1.

EDITORIAL. — With this number begins the fifth volume of the GAZETTE. We do not wish to press its claims too persistently, but at the same time, we do not wish them to be lost sight of, and the volume might as well begin as usual, with both a retrospect and a prospect. When, in November, 1875, the GAZETTE made its first appearance, bearing the already preoccupied name of BULLETIN, having four pages and not a single subscriber or contributor even promised, it was felt to be a hazardous experiment. If the usual methods had been employed, the GAZETTE would never have seen the light of day. In the first place, consultation with botanical friends would probably have frost-killed the nascent bud. There would have been objections to the paper and more serious ones to the editor. If it had escaped this ordeal, the attempt to get subscriptions and notes before beginning would have destroyed the last lingering spark of life the frost had left. But those dangers were avoided by acting in no such prudent way, but by starting as if all botanists were encouraging and there was a large subscription list pledged. The end of it was that the GAZETTE was not a paying investment the first year, and not very much better the second. The third and fourth years have seen a rapid advance, and the time has come at last when it seems that the GAZETTE is really able to completely pay its way. At the same time the printed matter has been quadrupled and the subscription kept at the original price.

There has been another favorable change. The first volume or two were mainly editorial, and as neither of the editors had had a particularly large botanical experience, there was sometimes a good deal of space devoted to a very little matter. Now the editor need not write at all with the object of supplying the call for "copy," but only for the purpose of spurring up friends whose zeal begins to flag, and of convincing strangers that they had better be strangers no longer. In view of the fact, then, that in the struggle for existence the GAZETTE has seemed to be the fittest to survive, while others have perished, we would urge that botanists take vigorous hold and, by means of subscriptions, advertisements and contributions, make this volume unexampled for its rapid advance.

CATALPA SPECIOSA, Warder. — A middle-sized tree with grayish-brown, much cracked or furrowed, at last slightly flaky bark and light, yellowish-gray wood; leaves large, truncated or more or less cordate at base, slenderly acuminate, soft downy on the under side, inodorous; flowers in large and loose panicles; tube of the corolla conical, longer than wide, its lower part scarcely protracted; upper lip before its expansion longer than the other lobes and enveloping them, lower lobe

bilobed, inside of corolla slightly marked at the throat with red-brown lines and with two yellow bands at the commisures of the lowest with the lateral lobes; stamens and style as long as the tube; pod terete, strongly furrowed; wings of seed about as long as the seed itself, rounded at the ends and split into a broad coma.

Common in the low, rich, sometimes overflown woodlands near the mouth of the Ohio, along the lower course of that river and its confluents, and in the adjoining lowlands of the Mississippi; in the States of Illinois, Indiana, Kentucky, Tennessee, Missouri and Arkansas; according to Michaux abounding near the borders of all the rivers which empty into the Mississippi further south; whether the localities, cited by him, of West Florida produce this or the Eastern species, is at present unknown.—Flowers in May.—This tree has quite an interesting and instructive history. It was already known to Michaux and to many botanists and settlers of those regions; even the aboriginal Shawnees appreciated it and the French settlers along the Wabash named it for them the Shawnee wood (Bois Chavanon) and prized the indestructible quality of its timber, but the botanists, even the subtle Rafinesque, who roamed over those very regions, seem to have taken it for granted that it was not distinct from the Southeastern *Catalpa bignonioides*. To me the fact that these trees, then not rarely cultivated in St. Louis,* produced their larger and more showy flowers some 10 or 15 days earlier than the Eastern or common kind, was well known as early as 1842 and their blossoming has since been annually recorded in my notes on the advance of vegetation, but I had not the sagacity or curiosity to further investigate the tree. It was reserved to *Dr. J. A. Warder*, of Cincinnati, to draw public attention to it. He was struck with its beauty in the streets of Dayton, Ohio, where a few stragglers were cultivated, and described it cursorily in his Journal, the Western Horticultural Review, Vol. III, page 533, without deciding whether a distinct species or a variety and without assigning a name to it. It was soon named, however, privately as it seems, by him and his friends *Catalpa speciosa* and was propagated as a more ornamental form. Thirteen years later I find in the catalogue of J. C. Teas' nursery, Baysville, Indiana, for 1866, *Catalpa speciosa* offered, the 100 one year old seedlings for $1.50. But only within the last few years the beauty and importance of the tree has made a greater impression on the public mind, principally through the exertions of Dr. Warder himself, Mr. E. E. Barney, of Dayton, and Mr. R. Douglas, of Waukegan, Ill. The latter was so much struck with the future importance of this species that in the Autumn of 1878 he collected on the lower Ohio 400 pounds of its seed for his own nursery and for distribution to all parts of the world.

Catalpa speciosa replaces *C. bignonioides* entirely in the Mississippi valley. It is readily distinguished from it by its taller and straighter growth, its darker, thicker (½–1 inch thick), rougher and scarcely exfoliating bark (in the older species it is light gray, constantly pealing off and therefore not more than 2 or 3 lines thick); its softly downy,

* It seems singular, that the common Eastern species has in our streets almost completely supplanted the much handsomer native.

slenderly acuminate and inodorous leaves (those of *bignonioides* have a disagreeable, almost fetid odor when touched), marked with similar glands in the axils of the principal veins of the under side; by its much less crowded panicle and by its much larger flower, fruit and seed. The flowers I found 2 inches in the vertical and a little more in the transverse diameter; in the other they have 1⅔ inches in each diameter; the lower lobe is deeply notched or bilobed in *speciosa*, entire in *bignonioides*; the tube in the former is conical and 10 lines, in the latter campanulate and about 7 lines long, in the first slightly oblique, in the other very much so, the upper part being a great deal shorter than the lower one, so that the anthers and stigma * become uncovered; the markings in the flower of the old species are much more crowded and conspicuous, so as to give the whole flower a dingy appearance, while ours looks almost white. The upper lip of the corolla before expansion extends beyond the other lobes and covers them like a hood in the Western species, while in the Eastern it is much shorter than the others and covers them only very partially. The pods of our species are 8–20 inches long, 17–20 lines in circumference, dark brown and strongly grooved, when dry, the placental dissepiment very thick; in the Eastern species the pod is nearly the same length, but only 9–12 lines in circumference, its grooves very slight, its color pale and the dissepiment flat. In both species the pod is perfectly terete before the valves separate, after that the valves of ours remain more or less semiterete, while the much thinner ones of the other flatten out, so that they *seem* to indicate a compressed pod. The elongated seeds, winged at both ends, are of about equal length in both species, but in *speciosa* they are much wider (3½–4 times) and the wings have more or less rounded ends which terminate in a broad band of rather short hair; in *bignonioides* the seeds are only 2½–3 lines wide, with pointed wings and their tips terminating in a long, pencil-shaped tuft of hair.

Our tree is larger, of straighter growth and being a native of a more Northern latitude is hardier than the Southeastern species; the wood of both is extremely durable, perhaps as much so as that of our red cedar, and has the advantage over it of a much more rapid growth and of possessing only a very thin layer (2 or 3 annual rings) of destructible sap wood. But of these qualities and of its adaptability to many important uses others, and especially Mr. Barney in a recent pamphlet, have given a full account. It is already extensively planted in our Western prairie states and especially along railroads, for which it is expected to furnish the much needed timber in a comparatively short time.—G. ENGELMANN, *St. Louis, Jan. 1, 1880.*

TENNESSEE PLANTS.—Along with specimens we receive from time to time valuable notes from our esteemed correspondent, Dr. Gottin-

* I may here remark that *Catalpa*, probably like all its allies, is proterandrous, the anthers open in the morning and the lobes of the stigma separate and become glutinous towards evening, the upper lobe remaining erect, the lower turning down close upon the style. I have not ascertained how they are impregnated as at that time the anthers are effete, and by the following morning the lobes of the stigma are again closed.

ger, of Nashville, Tenn. A few of them may here be put on record. *Forestiera ligustrina* does not (like *F. acuminata*) blossom in early spring from axils of the preceding year. On the cedar barrens near Nashville, where it abounds, the fragrant flowers develop about the middle of August from the axils of the leaves of that year; and the fruit ripens at the end of September. That of *F. acuminata*, which blossoms very early, is ripe before the end of May. *Tragia macrocarpa*.—Both surfaces of the leaves bear stinging hairs. *Phlox Stellaria*.—This neat and rare spe ies is found at Lavergne, seventeen miles from Nashville, in cedar barrens, growing in beds of sphagnum and other mosses, in moist places. *Thermopsis Caroliniana*, a most rare species, has been found by Dr. Gottinger on the Harpeth hills, near Nashville.—A. GRAY.

LITTORELLA AND SCHIZÆA IN NOVA SCOTIA.—It is singular how a long-overlooked plant, once detected, is then promptly found again and again. Following upon Mr. Pringle's announcement of the second discovery of *Littorella lacustris* (at the northern end of Lake Champlain), I have now to annonnce that Miss Elizabeth G. Knight, of the New York Normal College, found it in August last, growing abundantly between the stones on the shores of Grand Lake, Nova Scotia, twenty-three miles from Halifax.

Botanists will be equally interested to know that she also detected, among the rhizomes of *Osmunda regalis*, near the lake shore, the rare *Schizæa pusilla*. La Pylaie's specimens in his herbarium at Paris, collected in Newfoundland about sixty years ago (which I have seen), had accredited this plant to Newfoundland; but I believe no one has since found it out of New Jersey until this happy discovery by Miss Knight in an adjacent portion of British America.—A. GRAY.

THE COEFFICIENT OF CONTRACTION.—My attention was lately drawn to a remarkable case of the difference in length, produced by unequal "seasoning," in the two sides of an oak post. The post referred to is about four inches square; one end is sunk in the ground and the remainder projects ten and one-half feet above the surface. When placed in position some time ago it was str ight and perpendicular; at the present time it leans toward the south, deviating a little over a foot from the perpendicular. The post was "set with the compass," and it is interesting to note that a north and south line lies in the plane of the curve.

Experiments have given us the coefficients of expansion in the different metals. Why may we not have experiments to determine the coefficients of contraction in different woods, i. e., to determine the fractional decrease in length produced in rods of "green" wood, say 1 meter long and 2 cm. square, by the application of a steady and absolutely dry heat for a given lenth of time? The knowledge would be of no practical importance perhaps, but it might bring out unsuspected correlation between looseness of tissue and amount of contraction.—C. R. BARNES, *Lafayette, Ind.*

NOTES ON FUNGI.—The great drought which extended throughout Maryland in June and July, 1879, was discouraging to the collector of Fungi. Very few Agarics appeared, and the Boleti, with the exception of a few stunted forms, were not represented. Even in eastern Maryland, where the atmosphere is humid, the land low—woods often in swamps—plains intersected by narrow streams and broad rivers—there was a like scarcity of plants.

For the past four years certain species of fungi have been plentiful in nearly all woods within the distance of thirty miles from Baltimore. In June and July, 1877, likewise in 1878, the woods near Lutherville, Baltimore county, was adorned with beautiful forms and glowing colors. This profusion continued at intervals until September, a few coming as late as November.

The first and only perfect plant I collected in June, 1879, was *A.* (*Coprinus*) *micaceus*, Fr. It had chosen a low situation on a lawn that was kept constan ly watered with a hose. In this way it obtained sufficient moisture to reach perfection. The pileus was ovate, pale ochraceous or cinereous, 1½–2 inches broad; two were covered with micaceous granules, the rest were smooth; margin deeply striate, nearly plicate; lamellæ, at first white, turning to black; deliquescent; stipe hollow, white, silky; spores .0003 x.00035 of an inch long, .0003 of an inch broad; black; plant cæspitose. On the day that I found this Agaric, I asked a laboring man if he had seen any "Frog stools" in that section. He looked at me earnestly, repeating: "Frog stools! Why they isn't come up yet. What does anybody want with them pison things? You'll pison yourself to death!" A few days after this I met with the same man, and was greeted with the query: "Found any frog stools yet?" When I replied in the negative, he instantly said: "An' it's a blessed thing you can't find 'em! Better let Frog stools alone! That's my advice to everybody." When turning to walk off one of my companions heard him remark in an undertone: "Poor thing: crazy, certain sure. Clean gone mad!"

During the great drought in July I met with *Boletus strobilaceus*, Scop., growing solitary upon the summit of a high embankment. Considering the parched and slippery grass that one had to pass over, it looked like a break neck excursion to attempt to reach it; but with the aid of two stout sticks I succeeded in gaining the eminence. The plant was perfect in all its parts, with a pileus 2 inches broad. The wonder was how a spore could germinate in soil that was apparently without moisture; but so it was. In very wet seasons this fungus often attains 10 inches across pileus In the latter part of July, *A.* (*Lentinus*) *lepideus*, Fr., appeared in profusion on an old stump in Druid Hill Park, near Baltimore. The stipes were scaly, rooting below and variously branched; each branch bore a perfect pileus 2–4 inches broad, mostly convex, white, covered with small, pale brown scales; lamellæ white, decurrent; spores .00026 x.0003 of an inch in diameter. *A.* (*Amanita*) *strobiliformis*, Fr., appeared in Druid Hill Park about the same time. This is a majestic plant with a pileus 8–9 inches broad, dirty white cinereous and even ochraceous, covered with persistent warts not unlike the scales on a small pine cone; lamellæ

white to cream color; stipe 6–7 inches high, 1–2 inches thick, floccoso-squamose, bulbous, rooting, bulbs large and conical, extending 6–8 inches below the surface, ring large, lacerated, volva short, encircling the bulb like a frill, lacerated at margin; odor delightful, somewhat resembling that of our edible *A. campestris*, but more powerful; the aroma from the bulb is even greater than from the pileus; spores .00057 x.00035 inch, plant gregarious; open places in woods. One more plant, *Zylaria polymorpha*, Grev., which grew on an old stump in Druid Hill Park, completed the collection made in June and July, 1879.

The heavy rains of August brought Agarics and Boleti in both sections of the State, but at no time were they so plentiful as in past years, neither did they continue later than the first week in September, in consequence of a second drought. Possibly, if one had explored eastern Maryland extensively, new and different forms might have been discovered, but with the exception of *Panus strigosus*, B. & C., found there only, the flora of the two sections was precisely the same, except that the plants from eastern Maryland were generally larger. *A.* (*Amanita*) *muscarius*, L., was remarkably beautiful, pileus 8–9 inches broad, canary yellow, covered with pale ochraceous warts; margin striate; lamellæ white; stipe 6–7 inches thick, bulbous; volva broken up skirting the bulb in large, heavy flakes; ring large, fugaceous; spores .00026 x.00032 inch. In western Maryland this plant was scarce, dwarfed in size, and not to be found in woods it occupied in 1878. The pileus varies in color from ochraceous brown to canary yellow; the spores were also slightly smaller, .00018x.00032 inch. *A.* (*Amanita*) *rubescens*, Pers., also a very handsome plant, had a pileus 8 inches broad, dark red to sienna red, covered with brown warts, margin striate; lamellæ white; stipe 7–8 inches high, bulbous, almost fringed with red scales; spores .00022 x 00032 inch. In western Maryland the stipes were without one exception clothed with red scales, not marked or streaked with red as heretofore; pileus 4–5 inches across; stipe 3–4 inches high; spores .00018 x 00032 inch. The flesh in all turned red when cut or bruised, but this is not constant; very often the flesh is white and unchanging. *A.* (*Amanita*) *vaginatus*, Bull., from eastern Maryland, was unusually large and beautiful; the pileus measured 6-7 inches across, more or less studded with scales at disk, not persistent, mouse gray, margin deeply and beautifully striate; lamellæ white, striped with a cottony substance; stipe 6–7 inches high, sericeo squamulose, hollow or stuffed, volva sheath-like; spores .00032 x.00040 inch. The easy splitting of the stipe longitudinally seems to be a constant character in this fungus. In western Maryland, *A. vaginatus* rarely measures more than 3–5 inches across pileus, variable in color, mouse gray or various shades of slate color, sometimes white; lamellæ with or without the cottony stuffing; pileus with or without scales. *A.* (*Amanita*) *nitidus*, Fr., was large in both sections of the State, with a pileus 6–8 inches broad, white with a tinge of umber, deepened at disk, covered with pale cinereous warts; margin not deeply striate; lamellæ white, stipe 4-5 inches high, solid, squamose, attenuated upwards, bulbous at base, ring fugaceous;

spores .00024 x.00032 inch. *A.* (*Amanita*) *solitarius*, Bull., was another fine-looking Agaric; the pileus measured 6–7 inches across, covered with warts more or less erect at disk and tinged with ochre; lamellæ white or cream color; stipe solid, unequal, squamose, and even imbricated; bulb very large, rooting below, ring torn. This fungus has always appeared solitary until last summer, when I found two growing very near each other. The *Lactarii* were variable in size. *Lactarius insulsus*, Fr., pileus 4–7 inches broad, margin sometimes distinctly striate, then faintly striate, again without striæ; at times faintly zoned, then plainly zoned, then zoneless; color various shades of yellow, often buff color; lamellæ concolorous; stipe stuffed or hollow, pale shade of yellow; spores .00032 of an inch in diameter, milk white and plentiful; taste extremely acrid. The stipes of several of these plants were lacunose. The *Russulæ* from eastern Maryland were generally large. *R. virescens*, Fr., came with a pileus as large as an ordinary breakfast plate, metallic green, varying in depth of color, more or less covered with patches or scales from green to ochraceous green and even yellow; margin striate all the way round, then only at intervals; lamellæ white, brittle, more or less forked; stipe equal, short, stuffed, white; spores .00028 x.0003 of an inch in diameter; taste pleasant. This plant appears in western Maryland with the same variations, but smaller. *R. emetica*, Fr., measured 8 inches across pileus, variously shaded from bright red to sage color; lamellæ white; stipe white stained with red; spores .00036 of an inch in diameter; taste acrid *R. alutacea*, Fr, was about the same size, with a red pileus; buff colored lamellæ and half colored spores; very mild and pleasant to taste. *R. rubra*, Fr., a remarkably handsome plant, the ornament of the woods wherever it grows, with its beautiful, glossy red or deep pink pileus, white lamellæ, white or pinkish stipe, and acrid taste, was large and plentiful.

Boletus luridus, Schæff., from both sections of the State, came glowing with color. Pileus 5–6 inches broad, bright red or scarlet shaded into bright yellow at margin, excessively viscid, shining as if varnished, convex or expanded; pores convex, at times adnexed, again nearly free, again free, dark brownish red, bright yellow with red around the orifices, then bright orange color; stipes red with brown reticulations, again reticulated with carmine. Heretofore the pileus of this fungus has been slightly tomentose, dark reddish brown, pinkish, and brick-red; pores free, yellow, with red around the orifices; spores 0006 x.00038 inch, dark olivaceous green. The flesh of this plant, when eaten into by insects, does not change to blue. I have found this to be the rule without one exception. In eastern Maryland I collected a curious *Boletus*, the name of which I do not yet know. Two plants seemed undecided whether to remain Boleti or to become Agarics. One was decidedly lamellated on one side nearly to the margin, the other lamellated only at intervals. The same plant appeared about the same time in western Maryland, but lamellated only as the pores reached the stipe. Two specimens of *Polyporus applanatus*, Fr., I found growing in short grass about ten yards from an oak tree. The pileus of one plant measured 4 the other 5 inches across.

There was evidently a struggle to adapt themselves to their new habitat. There were neither roots or dead wood for them to adhere to, and I concluded that some severe storm had separated them from the tree and placed them in their new position.

The above plants comprise only a few out of the large number I collected in 1879. Many that appeared in profusion during the Summer and Autumn of 1878, were not with us in 1879. Perhaps the most conspicuous amongst the missing for their singular beauty as well as for their offensive odor, were *Phallus duplicatus*, Bosc., and *Phallus impudicus*, L. I found *Phallus duplicatus*, in the early part of June. Three plants in three different periods of growth were close beside each other in an open place in the woods. The first form of this fungus is that of a puff-ball, containing a tremulous mass of gelatine. Within this is *P. duplicatus*, with its rudimentary pileus and stipe preparing to burst through the volva. In the second period of growth it escapes the volva sufficiently to show the pileus, together with a portion of the stipe around which hangs a white reticulated frill looking like a beautiful lace drapery; pileus 6–7 inches across, campanulate, lacunose and distinctly marked with variously formed reticulations; a portion of gelatine clings to it, which, from the action of air and light often turns amber color, giving a showy transparent appearance. In the fully developed plant the external surface of the pileus rapidly passes into mucilage and drips away in deliquescent drops of a dark olivaceous green, almost black. The perforated apex is firmly attached to the stalk and bordered with a delicate edge of white or cream color. Beneath the pileus the stalk is conical and covered with a reticulated drapery, which adheres for the space of one inch, when it flows off and hangs down loosely like a white lace frill an inch or so below the pileus. There is attached to the apex a lengthened drop of gelatine, two inches long, which hangs within the cavity of the stalk and seems to furnish its internal lining with mucilage. The pileus is lined with a smooth white skin slightly viscid. The stalk is 10 inches high, 1–2 inches thick, white, looking like carved ivory, hollow, with a white, smooth, glossy internal lining, externally covered with small and variously shaped cavities which extend to the internal lining, but do not penetrate it, forming a substance somewhat like the fine tissues in bone, cutting hard and brittle; exceedingly delicate at the base, and but for the volva which remains upright with its mass of gelatine, it would have nothing to support it. The volva is universal and composed of a strong rough looking tough skin, whose sole duty seems protection; within it, and extending to more than half its height, there is a partition or dividing wall of tough, thick white skin, this keeps the gelatine in place separating it from the stalk and holding it fast between the two walls.

Strange to say I drove six miles in a public conveyance with three of these plants closely covered in a basket, without hearing a remark upon the abominable odor. By the time I reached my place of destination the smell had increased to such an extent that the flies nearly devoured me, in their eagerness to get at the fungus. Worse than all there was an outcry through the house, one enquiring of the

other what the loathsome smell could be, and where it came from. Each moment was filled with anxiety, lest my precious fungus for which I had already endured so much, might be seized and carried off before I finished dissecting it. The pileus was crowded with beetles, and judging from the eaten portion they must have relished it greatly for they had taken a hearty lunch. *Phallus impudicus*, which I found shortly afterward was equally offensive and attractive to flies and beetles.

While it is interesting to observe the variations in the color, size and configurations of certain species of fungi, it is equally so to note their absence from one locality, for an indefinite time, and perhaps their appearance in another. One is led to suspect that the spores either hibernate or are carried by the wind to far off sections like the seeds of some phænogamous plants; or there may be in some seasons an absence in certain qualities in soil and atmosphere requisite for their germination. In sections where no changes have been made, such as draining the soil, cleaning out woods, or cutting down trees, we are constantly missing plants for a period of one or more years as the following notes will show.

In 1877, *Lactarius volemum*, Fr., was plentiful from June to September, but very slender in form. In 1878, not so plentiful but very large. In 1879, it left its old haunts and other plants took its place, though in some instances its place was unoccupied. *A.* (*Tricholoma*) *virescens*, Pk., was plentiful in 1877, but has never appeared since. *Boletus ornatipes*, Pk., as well as many other plants that one could not go amiss for in 1877, were rare in 1878, none in 1879. For three successive years I found *A. vaginatus*, in one spot, on or about the fifteenth of July; in 1878 it was missing; but appeared plentifully in a distant woods. *A. laccatus*, Scop., was scarce in 1877, mostly to be found on dead leaves and sticks. In 1878 it carpeted the woods in some places three yards in diameter; in 1879, not one was to be found in the same locality; it took a freak to visit a woods ten miles distant, and after having been small and unpretending in appearance it assumed the most beautiful and fantastic shapes, as well as the brightest colors; pileus 4–5 inches across, convex, umbilicate or deeply infundibuliform; lamellae often bright reddish purple, with a deep flesh color or bright sienna-red pileus. *Fistulina hepatica*, Fr., has been rare for several years past, but last August old oak stumps as well as the projecting roots of oak trees, were crowded with it. At first sight it presented the most curious appearance looking like large pieces of raw flesh or liver scattered about on the grass. It has a delightful acid taste. *Morchella esculenta*, Pers., and *Helvella crispa*, Fr., so plentiful in 1877, has not been seen since. That beautiful little plant *Cyathus vernicosus*, DC., which abounded in nearly all gardens in 1878, was absent in 1879. During some seasons when other species are so plentiful the *Trichogasters* are poorly represented. In 1876, *Geaster fimbriatus*, Fr., was abundant, but I have not found one plant since. In 1877, *Lycoperdon gemmatum*, Fr., crowded the woods in almost every section; one or two imperfect forms appeared in 1878,

none in 1879. *Lycoperdon cyathiforme*, Bosc., numerous and very large in 1877, has not been with us since *Scleroderma vulgare*, Fr., plentiful in 1877, two imperfect forms in 1878, none in 1879.—M. E. BANNING.

NOTES ON SOME INTRODUCED PLANTS IN DALLAS COUNTY, TEXAS.—These are notes on most of the naturalized plants in this county.

Adonis autumnalis, L., was imported by the French colonists in 1855, and appears in many fields and along the roads

Nasturtium officinale, R. Br., was first introduced about twenty years ago, but became common only within four or five years.

Capsella Bursa-pastoris, Mœnch, was seen for the first time in 1865, but has become quite a common weed.

Viola tricolor, L., var. *arvensis*, Ging., I am satisfied, is native. I have met it in large patches in remote woods and prairies, sometimes very far from settlements. The true *V. tricolor* has been naturalized in gardens and seems to be keeping its characters very constant I believe the two may be considered good species.

Portulaca oleracea, L., is certainly native, although it has been considered by most of the botanists as an introduced species. It infests all cultivated lands. You may go 100 miles from civilization, break the prairie, and the second summer will be sure to see it covering your field. This year in traveling on the northwestern frontier, far from any settlements, I have met it growing in prairie dogs' villages, in company with the *P. pilosa* and *P. lanceolata*, both considered native species.

Tribulus maximus, L., was introduced about 1860.

Abutilon Avicennæ, Gœrt., made its appearance about the same time.

Conia occidentalis, L., belongs to the same period.

Anthemis Cotula, L., dates from 1875, and since has been very common in the city of Dallas.

Ipomea purpurea and *I. hederacea* are common in some fields but, I have not the date of their introduction.

Datura Tatula, L., is very common and was naturalized long ago.

Martynia proboscidea, Glox. is sparingly naturalized, but seems spontaneous in the West.

Verbena officinalis, L., is certainly native. It grows in all the sandy woods and wild prairies. The roots are *positively* perennial, which does not agree with the description in the Synoptical Flora of Dr. Gray.

Marrubium vulgare, L., appears in the neighborhood of cattle and sheep lots after a few years of settlement.

Boerhaavia viscosa, Lag., was seen first in 1876; *B. stricta*, in 1879.

Rumex obtusifolia, L., seems perfectly at home in all damp places.

Chenopodium hybridum, *C. murale*, *C. ambrosioides* and *C. anthelminticum*, are more or less common, the last seeming perfectly indigenous.—J. REVERCHON.

DIMORPHO-DICHOGAMY IN JUGLANS AND CARYA.—Referring to a note by Mr. Pringle, in No. 12, Vol. 4, it may be interesting to note that in the grounds of Dr. Dunton, in Germantown, there is a very large *Carya olivæformis*, supposed to have been introduced to the garden through the agency of Mathias Kin, in the early part of the present century, which bears nuts very freely every year, as I believe. The nearest tree that I know of its kind is at the Bartram garden, some fifteen miles away. Single specimens of *Juglans cinerea* are not uncommon in Germantown gardens, with other trees a quarter or a half mile away. Groups of them are not uncommon in the Wissahickon two or three miles away from the gardens. These trees generally bear. Some years along the whole line of the Wissahickon there is not a nut to be found. When there is any at all, they are found on every tree.—THOMAS MEEHAN.

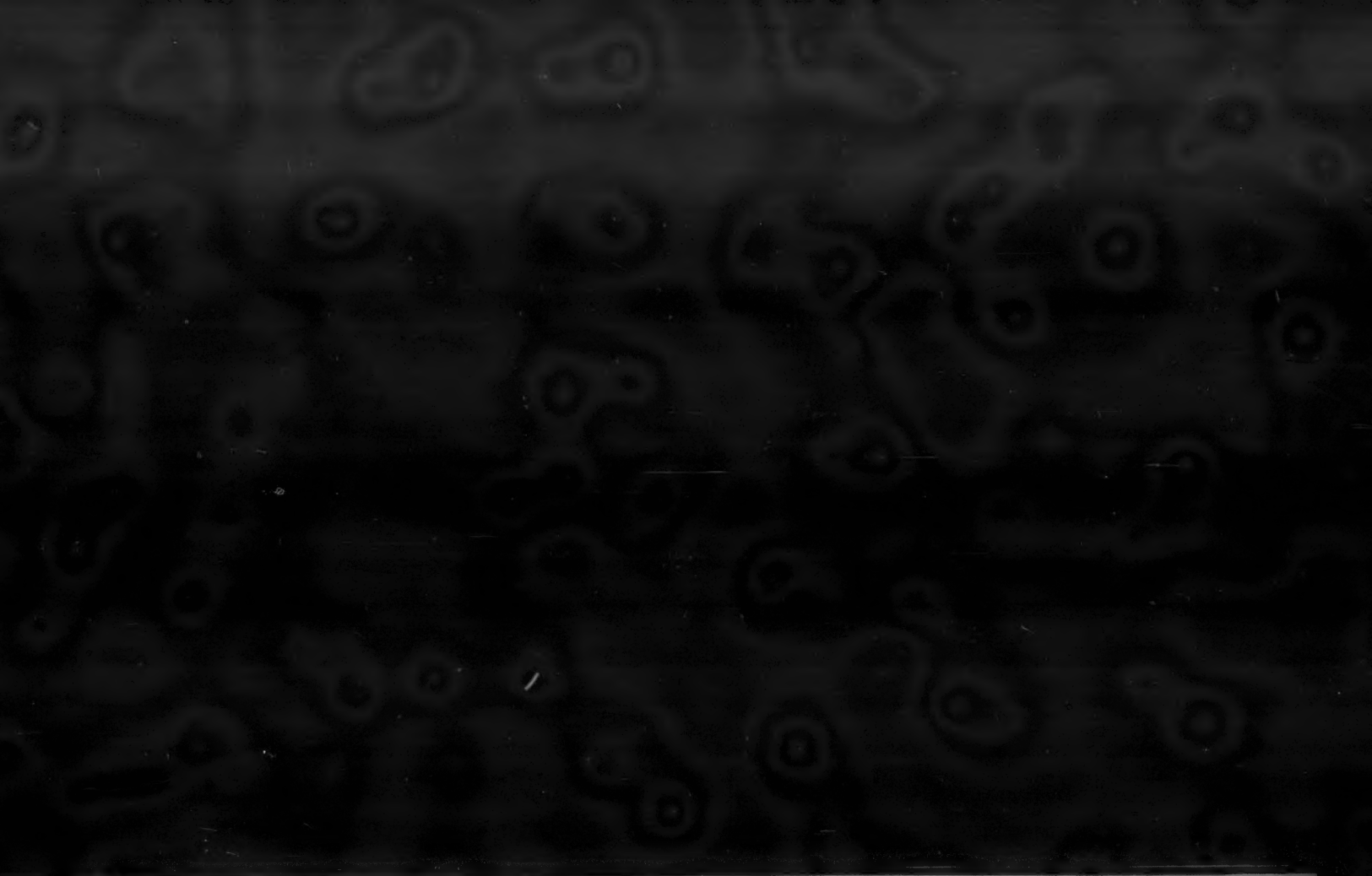
MR. M. S. JONES' COLORADO NOTES.—*Malvastrum coccineum.*—Without questioning the accuracy of Mr. Jones' determination, I yet feel moved to "suspend judgment" on the noxious qualities of this species. It seems so incredible that a malvaceous plant should have this fearfully toxic property, that it will be safer to believe the stock men have not sent the real culprit. "Twelve hundred sheep dying in four hours," does not strike those acquainted with the vegetation about Pueblo, and the nature of the ovine constitution, as being particularly careful records of the facts.

Neillia Torreyi.—In addition to the pubescent ovaries, it may be noted that the calyx and pedicels have the same character,—the calyx indeed often quite woolly. This is particularly the case with specimens I collected in 1871, in what is now Engelmann canon. This thick pubescence seems to follow all the forms found in Colorado, and is a good distinguishing mark from the Eastern species, *N. opulifolia.* Besides there is another good character not noted by Mr. Watson, in the calyx, which has its sepals obtuse, while in the Eastern species they are apiculate as the carpels are. Botanists speak of the *N. Torreyi* as a "small species with small leaves and flowers," but this is only true as regards the altitude at which it is found. I have some specimens gathered in 1873, exact locality not noted, in which the whole plant was not probably over a foot high, with the leaves smaller than the most stunted *Ribes rotundifolium*, which in that condition, they much resemble. Some from the high hills at the entrance to South Park through Golden Gate, gathered in 1871, were from plants two to three feet high,—while the specimens gathered near the mouth of Engelmann Canon in 1871, were from bushes, as large as the average of those we see of *N. opulifolia* in the East.

Aquilegia chrysantha.—Mr. Jones says he has seen *Aquilegia chrysantha* "occasionally," with "both colors of flowers on the same plant." By "both colors" I infer he means the blue of *A. coerulea* and the yellow of *A. chrysantha.* This would be a valuable fact if there be no mistake in the plant in Mr. Jones' mind. As he refers to finding the plant near "Colorado Springs," I may fairly suggest some

mistake. What is now Colorado Springs was once my camping ground when it was a "wild waste," and if any where I think I should have found *A. chrysantha* there. I never knew of any one finding it there. Though found in southern Colorado, I believe, I have never met with it myself in the State nor even in Utah, where it is probably more at home. There seems to be an error also, in the reference to "Rothrock in Wheeler's Survey." Instead of making "similar observations," he says they are "*always yellow*," italicising the words. From, my observations of *A. chrysantha*, under culture, which have been extensive, I should imagine there was as much distinction between the two species named, as between any other species, for, in the whole genus the "evolutionary links" have not been lost in many instances. *Smilax herbacea*, was collected by Isaac C. Martindale and party, in Queen Canon in 1878; as also was the interesting variety of *Ampelopsis quinquefolia*. The valuable observations on the flowers which Mr. Jones made, were, however, not noted, the plant being then only in fruit. See also Porter's *Fl. Col.*

Mr. J., will, I trust, pardon these few criticisms, as they are offered solely in the interest of Botanical Science.—THOMAS MEEHAN.

AN EXCHANGE FRAUD.—For the benefit of others engaged in collecting and exchanging I would like to expose one *Willie F. Wamble*, of Raleigh. N. C., whose plan is to get plants sent him for which the sender gets only promises in return. Botanists who have no duplicates to throw away will save them by steering clear of him. Not only has he defrauded me of a lot of ferns but I have it from good authority in Raleigh, N. C., that he is not reliable.—R. H. WILDBERGER, *Prof. Nat. Sciences, Ky. Mil. Inst., Farmdale, Ky.*

BOTANY TO THE AID OF GEOLOGY.—"The little facts of science, seemingly trifling, are often of great value in deciding greater questions or, at least, ones deemed of more importance by the human race. On Kerguelen's Island, a tract 4,000 miles west of Cape Horn, our common fern (*Polypodium vulgare*) is found. Other plants common to America are also found there. It is considered out of the question that they had their original home center there, and it is deemed highly improbable that they could have been carried there by any agency now existing. The only suggestion deemed within probability is that there must in the past have been a land connection between these points, now four thousand miles apart. This was Dr. Hooker's view, when he visited the Island and noted these plants many years ago. Geographers connected with the "Challenger" expedition have now come to the same conclusion with the botanist, from an entirely different line of reasoning. There are several plants on the Island found no where else. One of these (the *Pringlea antiscorbutica*) is not only special to the Island, but it is distinct from any known coniferous plant, in having powdery pollen and no petals. And these facts are taken to indicate that a long connecting line has been swept away."—*Independent.*